Cristian Munoz Anchondo

Tejaswi Gowda

AME494-598

05 December 2022

Rear-View Camera Distance Sensor

For my project in this class I decided that I wanted to implement a distance laser sensor into a vehicles rear view camera. The idea behind the project itself was to have a your typical back up camera along the distance of the object in front of the camera displayed somewhere along the screen. My idea stemmed from working with cars and realizing that although most modern vehicles come with a back-up cameras equipped, that they never actually indicate what the distance is between you and the object behind your vehicle. Some of the Necessary equipment needed for the project was just a GoWoop Laser Ranging Sensor as well as a Lilygo Camera. Before starting the project I planned the connect the Laser sensor onto the Camera to where I could upload the code for the sensor along with setting up a Hotspot to connect to the camera while you’re inside the vehicle. With this in mind I wanted to have the camera display on your phone while the Laser picked up the distance of the objects, all while tapping into the power coming from the taillights of the vehicle and allow the power to be given whenever the backup lights would turn on making it a true back-up camera.

The readings in class have influenced my work in a way where I was introduced to something I didn’t know how to do before. Which was set-up a server to send information to that server to display the data/information. The work in class has shifted the way I’ve envisioned my goals, In previous classes I had worked with Arduino to create sonar radars that would beep to notify the user an object was in front of them. Instead the shift went from a beep notifying the person something was infront of the sensor I would actually be able to display information like the distance to the person using it. Some plans I have for my future research would have to be getting better at working with physical hardware as I’m not too familiar with, taking this class showed me that I’ve focused more on the actual code then I have on actually working on the physical aspect of my projects.

At the end of the project itself I was able to connect the laser sensor onto the Lily go Watch while providing power to both simultaneously, this allowed the laser to detect the objects Infront of it and give off readings on the distance in millimeters. Unfortunately I wasn’t able to connect the camera to a power source which would have been my vehicle due to having limited time toward the end of the semester. Ideally the audience I was looking to introduce this product too would be anyone who owns a vehicle, as it would be something that they could add onto the back of their trunk in order to give them a backup camera, this is especially useful if the person using it doesn’t already have one on their own car. Another audience I could bring this to would be big car manufacturers like Mazda, Toyota, and Honda where they would be able to implement these things onto their current back up cameras allowing them to give their consumer more peace of mind when trying to reverse.

Ultimately I hope to improve on this project and find new ways to implement it to other everyday objects to create better technology for people. Moving forward I will look for ways to improve the sensor and camera overall or find new hardware and equipment to make these things more precise. With back up cameras already being implemented on most modern vehicle I can see this project being unoriginal but I soon plan to find ways to improve in that aspect as there may be ways to improve on what has already been created.